



*Changing the way we work*

## **"How Can Organizations Derive More Insight From the Data They Collect?"**

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In the course of our work, we are hearing a growing chorus of complaints from people who are collecting more and more data, yet starving for insight on how to improve organizational performance. In spite of the increasing volume of data at their disposal, they are still skeptical of whether they are collecting the right data, and whether the interventions based on those data are really making a difference in performance. In some cases, the resulting "infobog" is actually making it **harder** for them to make decisions, not **easier**. The sticking point seems to be the inability of most organizations to convert data into useful information.

We have been running up against this problem in our attempts to identify and measure the human factors that critically affect organizational performance. On the one hand, companies are demanding more and more data about what employees think and do so that they can better manage their human resources. They are gathering data more frequently to track the short-term impact of human resource interventions. And they are rapidly expanding the volume of data that is shared within the organization as they decentralize decision making and increase employee participation. On the other hand, the traditional methods for converting these data into useful information are not yielding the insights that these companies need to manage their increasingly complex and dynamic organizations.

Most companies rely primarily on employee survey methods to capture information about human factors. In the typical process, the organization designs and administers a survey instrument to capture employee opinions, analyzes the survey data to identify the biggest gaps between desired and actual performance, then designs and implements interventions to close those gaps. The effectiveness of the interventions is measured by readministering the survey and determining whether the scores are improved.

Although this process produces "hard" numbers, many managers remain skeptical of whether their interventions are really having an impact on individual or organizational performance, and whether the problems highlighted by the data are in fact real problems, or only symptoms of real problems. How can organizations derive more insight from these data to achieve higher levels of confidence and performance?

### **Emerging Themes**

In early November, we convened a meeting of practitioners and experts to address this question. Out of that meeting, and conversations we have had with others over the past couple months, the following themes have emerged.

- **Surveys can promote both alignment and learning.**

We have observed that organizations function most effectively when their people and systems are aligned with their overall purpose, values, goals, and strategies. Currently, most companies rely on their employee surveys to identify where the organization is **out of line** so that they can bring it back into line. The focus is on the question, "are people doing the right things?" Employee surveys are an excellent tool for gathering feedback on whether corporate goals and strategies are being communicated effectively and are being lived.

However, organizations also need feedback on "how people can do things better" and "how people can do better things." This requires that organizations learn from their experience. The most useful information for this purpose often lies in the **differences** among the survey responses and in the **outliers** or **out of bounds** responses. Questioning differences and

exploring outliers can yield valuable new insights into how things really work and where breakthrough changes may be possible. Yet, few organizations exploit this opportunity because they remain focused solely on achieving conformity and similarity, not on inquiry and differences.

Frequently, the most important information for decision making lies outside the boundaries of the survey process altogether. The scope of the survey responses is necessarily limited by the questions that are asked. Also, the process is extremely "sterile," with no opportunity to exploit non-verbal cues, to gauge emotional reactions, or to determine if the respondents are interpreting the questions the same way that they were intended. Posing open-ended questions provides one means for capturing out-of-bounds thinking. But, we have concluded that **interactive** processes are necessary to fully exploit these opportunities for learning.

- **The most useful information for guiding interventions often lies at a deeper level in the organization.**

We have come to believe that the responses to even the best survey items are only pointers toward more important information that often lies at a deeper level in the organization. It is this information about **underlying patterns, trends, and relationships**, and how they link to performance, that is most useful for decision making.

In a recent *Harvard Business Review* article, "Good Communication That Blocks Learning," Chris Argyris points out that learning in organizations can take two forms. **Single-loop learning** is a one-step, one-dimensional process that focuses on deriving information on objective facts. This is the information typically collected by survey instruments that addresses the question "What or how are we doing?" **Double-loop learning** takes additional steps beyond gathering objective facts, focusing on the reasons and motivations behind the responses to address questions such as "Why are we doing this?" "How might we do this better?" or "What would have to change to improve this situation?"

Both types of learning are essential to organizational success. However, most organizations rely almost exclusively on single-loop learning. In doing so, they deny themselves critical information about trends, patterns, and relationships that can help guide decisions.

Employee surveys can support double-loop learning by beginning a deeper and broader inquiry into what is going on at a deeper level in the organization and by providing a framework for that conversation. A growing number of organizations are experimenting with reflective processes like **dialogue** and **action reflection learning** as tools to help them gain a deeper understanding of issues that appear in the survey responses. These interactive and conversational methods are designed to surface and examine different mental models, assumptions, and beliefs that shape the behaviors and decisions of employees. The goal is to achieve mutual understanding and shared meaning, leading ultimately to greater alignment and self-organization.

It appears that companies can not only derive greater information from data through an interactive process that extends the boundaries of the traditional employee survey process, but they can also increase the richness of this information and the potential for organizational alignment by introducing double-loop learning into this interactive process.

- **Employees are a valuable source of insight, as well as data.**

In many organizations, employees are responsible for **generating** the data, but managers are responsible for **interpreting** the data. This limits the potential insight that can be gained from the data, since managers use their own filters to screen out information or avoid interpretations that may be uncomfortable or threatening. By involving employees in the interpretation of the data, organizations can benefit from a wider range of perspectives and potential solutions. Chris Argyris points to the need for a more honest conversation between employees and managers that requires both to examine not only underlying assumptions about the problem, but also the behavior and motivations that might be contributing to the problem.

Involving employees in the transformation of data into useful information has other benefits as well. Feedback sessions with employees provide an opportunity to increase understanding of and alignment with organizational aspirations and strategic objectives, as well as structure to promote business literacy and employee responsibility. Most surveys are designed to evaluate the effectiveness of management in solving problems, based on the assumption that managers have sole responsibility for organizational success. Involving employees in the interpretation of survey data creates an

opportunity for them to reflect on their own role in the problems they identify and to assume greater responsibility for their solution.

Meg Wheatley suggests another benefit of involving employees. She maintains that information is what people create together. The shared meaning and credibility that result provide a new form of organizational structure to the work that people do together. Involving employees in "creating information" allows them to self-organize based on a shared understanding of the organization's purpose and direction.

Some organizations routinely follow up employee surveys with focus groups and interviews to deepen their understanding of the data. New technologies such as George Land's "Connexus" method, now allow groups of employees to generate data, view the results, and participate in an interactive process of interpreting the results in real time. This allows organizations to dramatically reduce the cycle time of converting data to useful information, while directly involving employees in the process in a meaningful way.

- **Advanced methods of statistical analysis can help identify patterns and relationships in the data, allowing organizations to begin the conversation in a different place and to perform reality checks on their assumptions.**

Once organizations have gone through all of the trouble of collecting data from employees, some additional statistical analysis appears to be a good investment. Most organizations do not choose to make this investment, relying instead on descriptive or comparative analyses. However, other analytical methods can deepen understanding of underlying patterns and relationships.

One common strategy for furthering understanding is to explore the strength of relationships among survey responses by computing statistical measures of covariation, such as **correlation coefficients**. While this method can measure the degree of association between different factors, it cannot determine causality. However, a strong correlation is highly suggestive of a causal relationship. And, the absence of a strong correlation is often excellent evidence that expected causal relationships do not exist. In other words, a high correlation coefficient is often a necessary, but insufficient, condition for causality.

Another method, **multiple regression analysis**, allows organizations to explore the complex relationships among a number of factors at once, assessing the relative impact of each factor on a specific outcome. In addition, multiple regression analysis may reveal the presence of interactions among factors, allowing organizations to determine which combinations of factors might have the greatest impact.

Other methods reveal patterns in the data that give the organization insight into differences in mental models. **Factor analysis** (and techniques such as cluster analysis and multidimensional scaling) can indicate how various factors cluster together in the thinking of survey respondents, suggesting underlying themes or patterns that may have more power than the assumptions incorporated into the survey instrument.

**Computer simulation models** provide a way to capture the dynamic interaction among many different factors in complex systems. These formal system models have the capacity to pool the expertise of many different people in the organization, provide a cross-functional, systemwide perspective, permit rigorous testing and reality checking of assumptions and mental models, increase business literacy and strategic alignment, and perform "what-if" analyses to anticipate the impact of potential interventions on organizational performance.

Bill Arthur and his colleagues at Ventana Systems note that mental models, no matter how explicit, are often unreliable for problem-finding in complex situations where data are rarely complete, accurate, unambiguous, and relevant. He points out that people can only keep a limited amount of information in their conscious, working memory. As a problem becomes more complex, people simply stop checking the details, whether or not the stopping point is logical. He also notes that people's cognitive biases often lead them to misinterpret or ignore available information, especially if it leads to counterintuitive conclusions. He proposes that formal system models can compensate for these inherent human limitations by handling significantly greater amounts of data that managers can use to test and revise their initial assumptions and mental models.

## **Implications**

Unfortunately, these emerging themes do not roll up into a simple, new, "how-to" framework for organizations to easily adopt. But, they do suggest some important guidelines for evaluating methods currently in use, as well some possible new approaches to promote learning and deeper understanding of underlying patterns, trends, and relationships in employee survey data. Our conversations with others working in this area suggest that, because different methods yield different kinds of information, using multiple methods is likely to yield the best results.